

We claim:

- 5 1. The use of an ionic liquid as heat transfer medium for the indirect introduction or removal of heat into or from a reactor.
2. The use as claimed in claim 1, wherein the ionic liquid has a melting point below 150°C, preferably below 80°C, particularly preferably below 25°C.
- 10 3. The use as claimed in claim 1, wherein the ionic liquid used as heat transfer medium has an operating temperature in the range from +60°C to 360°C, preferably from 260 to 360°C.
- 15 4. The use as claimed in any of claims 1 to 3, wherein the reactor is a shell-and-tube reactor.
5. The use as claimed in any of claims 1 to 3, wherein the reactor is equipped with heat-exchange plates through which the ionic liquid flows as heat transfer medium.
- 20 6. The use as claimed in any of claims 1 to 5, wherein an ionic liquid containing a sulfate, phosphate, borate or silicate anion is used.
- 25 7. The use as claimed in claim 6, wherein the ionic liquid contains a monovalent metal cation, in particular an alkali metal cation, and a further cation, in particular an imidazolium cation.
8. The use as claimed in any of claims 1 to 5, wherein an ionic liquid containing an imidazolium cation, pyridinium cation or phosphonium cation as cation is used.
- 30 9. The use as claimed in any of claims 1 to 7 for removing the heat of reaction of an exothermic reaction, in particular a partial oxidation, particularly preferably for the preparation of acrolein, acrylic acid, phthalic anhydride, maleic anhydride, or for the preparation of chlorine by oxidation of hydrogen chloride.

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10. The use as claimed in any of claims 1 to 9, wherein the ionic liquid is used as a replacement for the high-temperature salt melt, a heat transfer oil, monochlorobenzene or a heat transfer medium used for evaporative cooling or for the condensation of vapor.

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